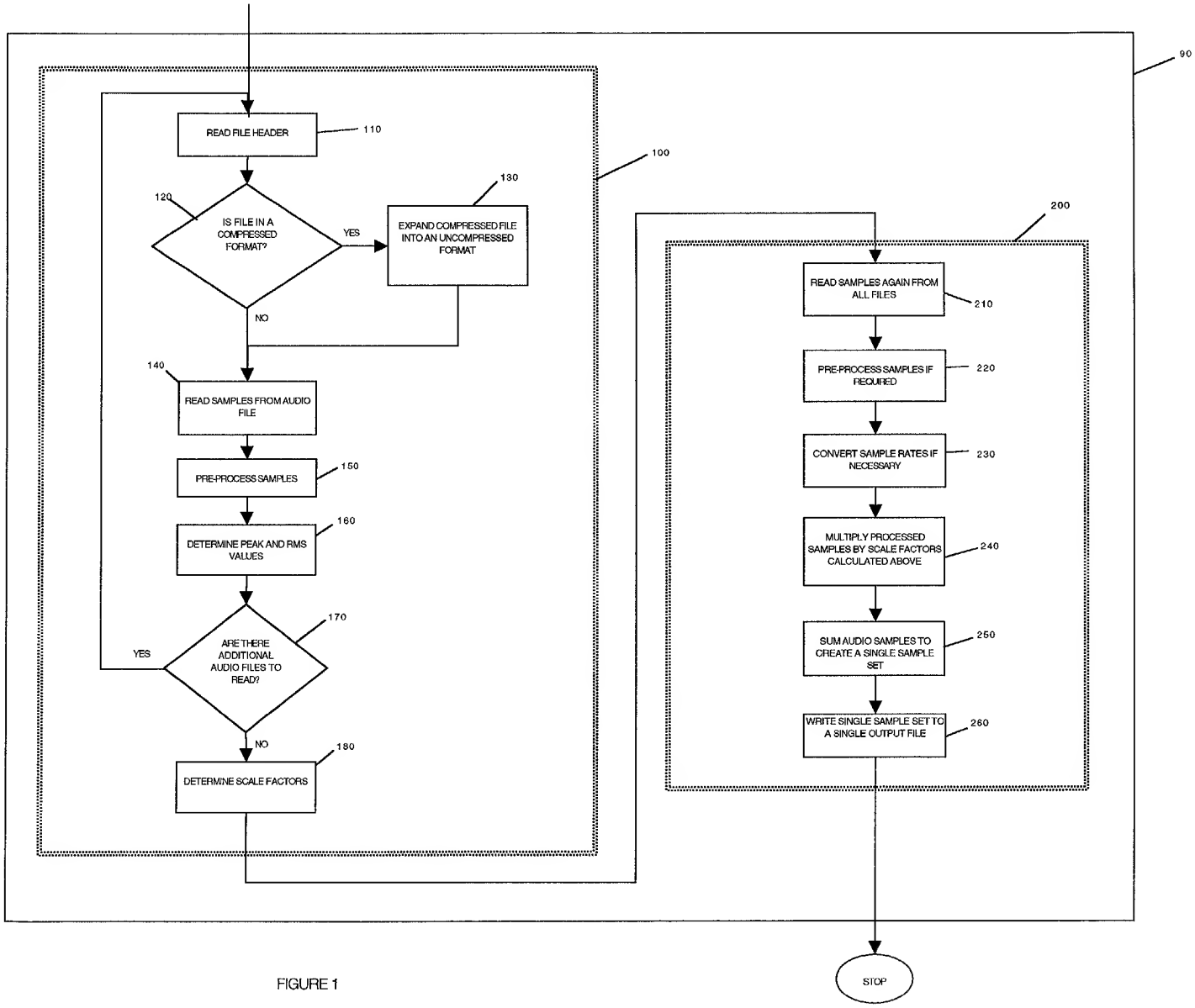

FIGURE 1

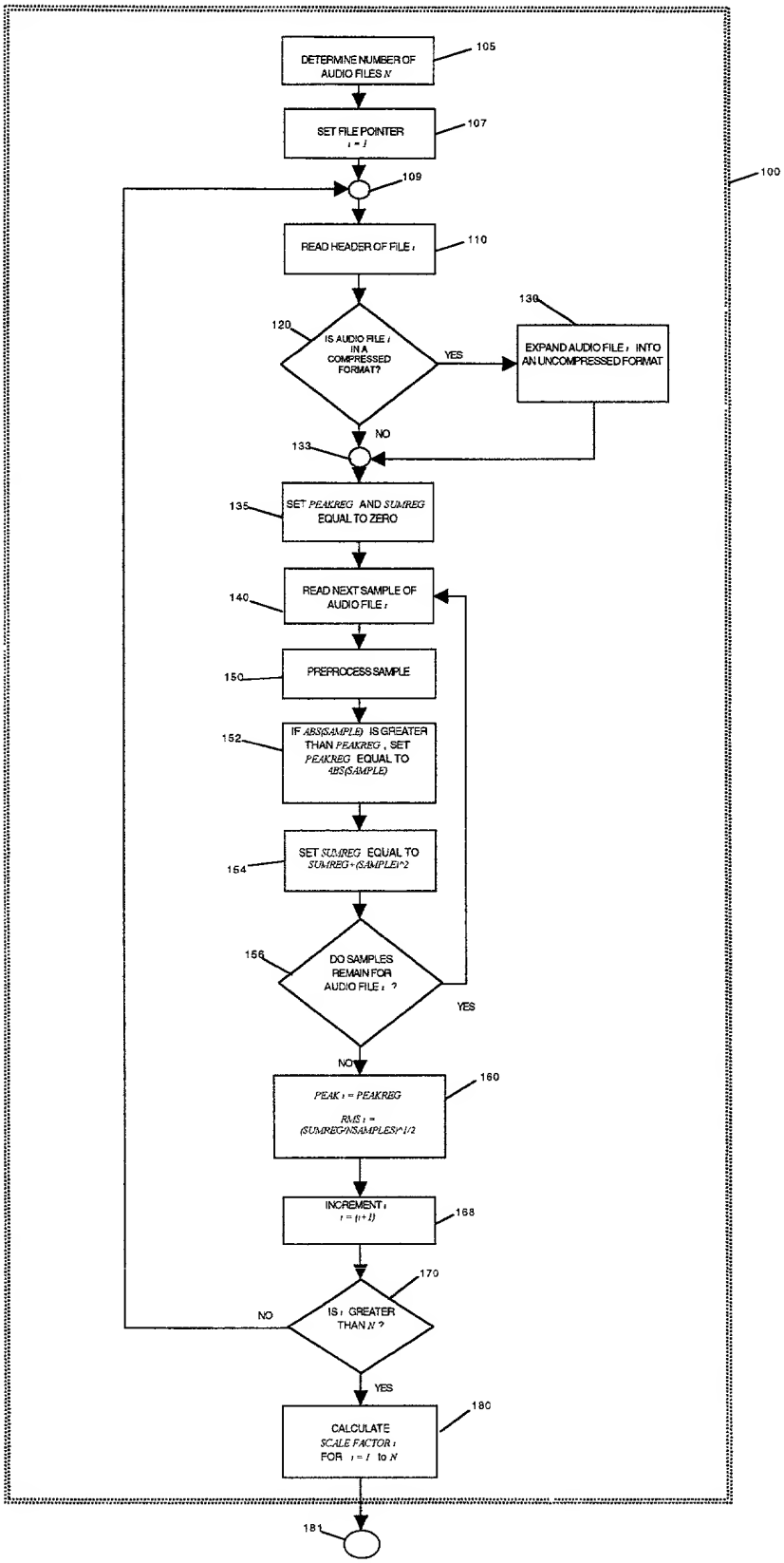

FIGURE 2A (preferred embodiment)

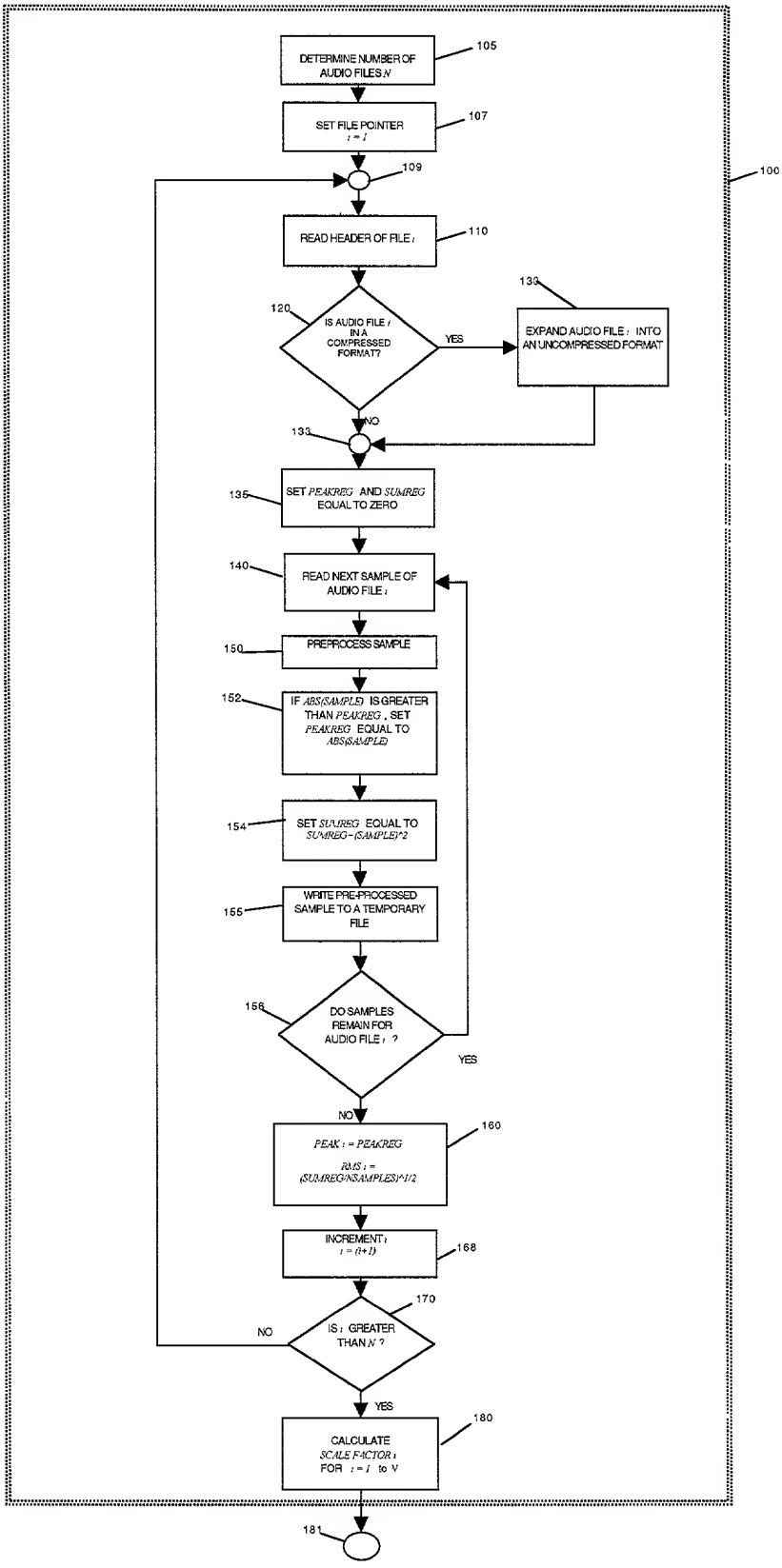

FIGURE 2B (first alternative embodiment)

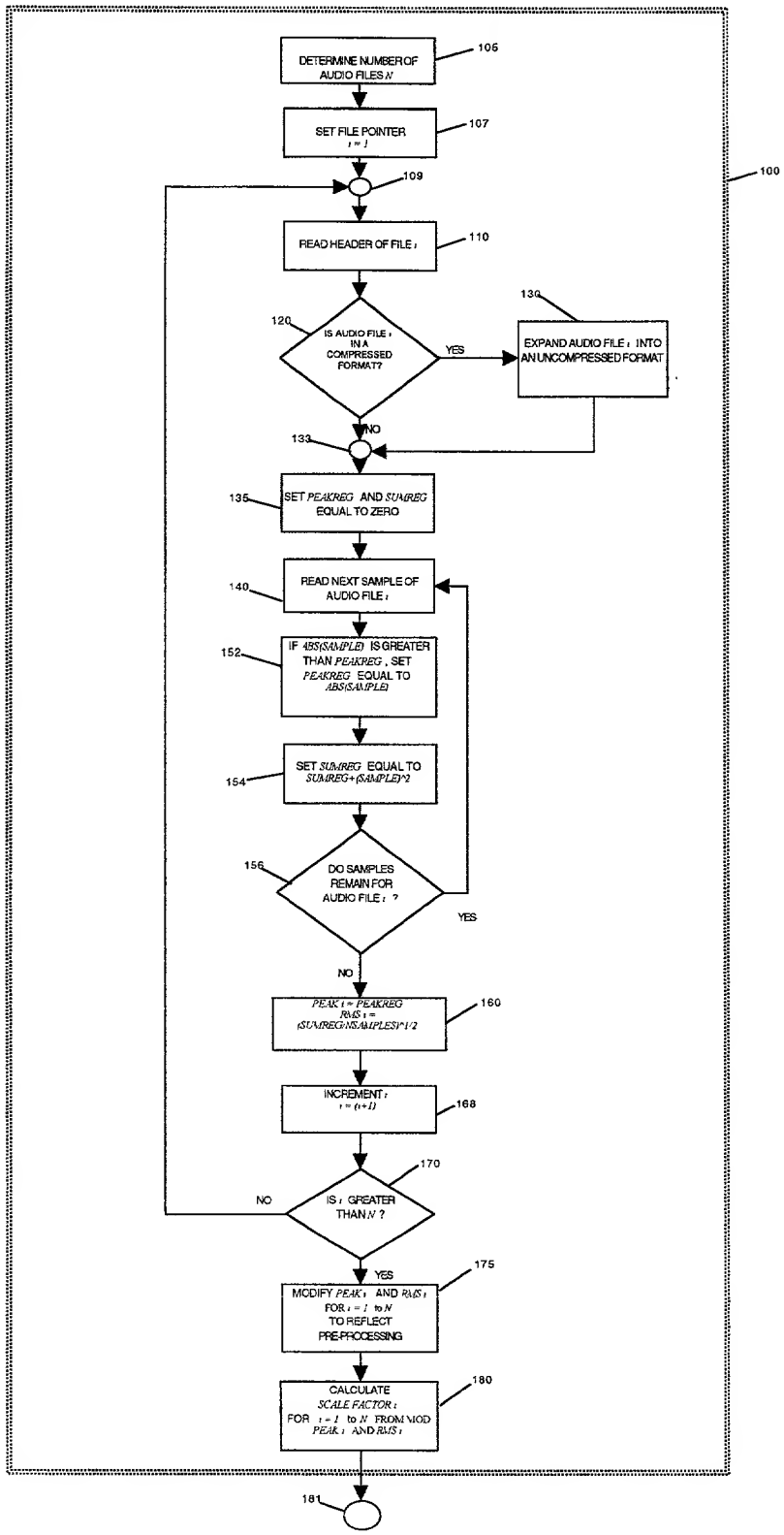

FIGURE 2C (second alternative embodiment)

CALCULATE SCALE FACTOR FOR TWO AUDIO FILES

$$FIRST\ SCALE\ FACTOR = K / \{PEAK1 + PEAK2 * (\beta\ * RMS1) / ((1- \beta\ ) * RMS2)\}$$

$$SECOND\ SCALE\ FACTOR = K / \{PEAK2 + PEAK1 * ((1- \beta\ )* RMS2) / (\beta\ * RMS1)\}$$

FIGURE 3A

(scale factor calculation for two files)

CALCULATE SCALE FACTORS FOR *N* AUDIO FILES

$$\begin{bmatrix} P1 & P2 & P3 & \dots & Pi & \dots & PN \\ ß1R1 & -ß2R2 & \dots & \dots & 0 & \dots & 0 \\ ß1R1 & 0 & -ß3R3 & \dots & 0 & \dots & 0 \\ \dots & \dots & \dots & \dots & 0 & \dots & \dots \\ ß1R1 & 0 & 0 & 0 & -ßiRi & 0 & 0 \\ \dots & \dots & \dots & \dots & 0 & \dots & \dots \\ ßNR1 & 0 & 0 & \dots & 0 & \dots & -ßNRN \end{bmatrix} X \begin{bmatrix} S1 \\ S2 \\ S3 \\ \dots \\ Si \\ \dots \\ SN \end{bmatrix} = \begin{bmatrix} K \\ 0 \\ 0 \\ \dots \\ 0 \\ \dots \\ 0 \end{bmatrix}$$

FIGURE 3B

(scale factor calculation for *N* files)

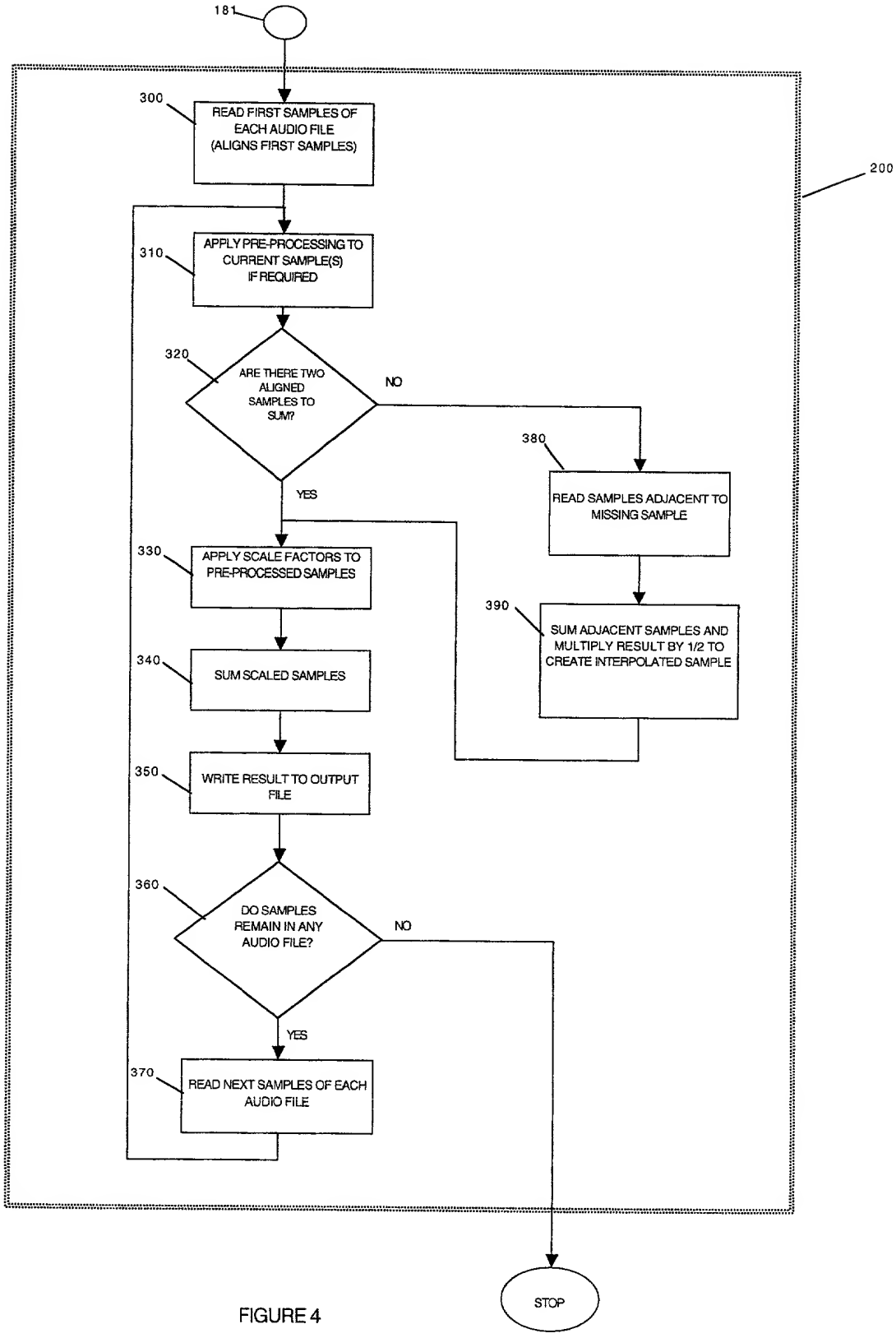
181
300
READ FIRST SAMPLES OF EACH AUDIO FILE (ALIGNS FIRST SAMPLES)
200
310
APPLY PRE-PROCESSING TO CURRENT SAMPLE(S) IF REQUIRED
320
ARE THERE TWO ALIGNED SAMPLES TO SUM?
NO
380
READ SAMPLES ADJACENT TO MISSING SAMPLE
YES
330
APPLY SCALE FACTORS TO PRE-PROCESSED SAMPLES
390
SUM ADJACENT SAMPLES AND MULTIPLY RESULT BY 1/2 TO CREATE INTERPOLATED SAMPLE
340
SUM SCALED SAMPLES
350
WRITE RESULT TO OUTPUT FILE
360
DO SAMPLES REMAIN IN ANY AUDIO FILE?
NO
YES
370
READ NEXT SAMPLES OF EACH AUDIO FILE
STOP

FIGURE 4